Planning Scheduling and Tracking of Residential Building using Project Management Tool
Sunil H. G\textsuperscript{1}, Gourav. M\textsuperscript{2}, Naveen Kumar. V\textsuperscript{3}, Prateek\textsuperscript{4}, Animala Charan\textsuperscript{5}

Assistant Professor\textsuperscript{3}, UG Student\textsuperscript{1,3,4,5}
Department of Civil Engineering
Sai Vidya Institute of Technology, Rajanukunte, Bangalore, India

Abstract:
Every one of us is a manager of projects of our own life. From a house wife to an employee to financial analyst, from banker to doctor, from engineer to administrator, from a teacher to a student, we all work on different tasks with deadlines. Regardless of our occupation, norms, or location in an organization, we all work on tasks that are eclectic and involve people who do not usually work together. The project may have a simple goals that does not require many people or a great deal of money or it may be quite complex, calling for diverse skills and plethora of resources. But the bottom line is that every one of us manages projects. Owing to this the purpose of dealing with the project should not be only execution but effective and efficient execution of project is essential which is needed to be highlighted. Construction Firms in India, Construct the Projects in a Traditional ways, this sometimes proves Uneconomical & Tedium too. Traditional way also proves to be Time Consuming and Confusing. The presented work will provide them an Opportunity to clearly observe the difference between the Microsoft Project (MSP) and the Traditional Planning Techniques which speeds up Construction and also make the Project Cost Effective with Proper Planning with the help of the case study on the single wing of project executed in Pune, Maharashtra, India. For finding out various aspects that proves efficient planning & execution of the project, disparate methodologies adopted and to find out remedial measures, international journal papers were referred. Methodology adopted includes defining of problem statement, insinuating the activities and resource are managed and the project is delivered both “on time” and “within budget. Project Management is the Application of knowledge, skills and Techniques to project activities to meet project requirements. It is a strategic ability to do something successfully for organizations, enabling them to patch the project results to Organizational goals and thus, better compete in their markets. It can be also defined as the process and activity of planning, organizing, inspiring, and controlling resources, procedures and protocols to achieve specific goals in scientific or daily problems. Project Management is the Application of knowledge, skills and Techniques to project activities to meet project requirements. It is a strategic ability to do something successfully for organizations, enabling them to patch the project results to Organizational goals and thus, better compete in their markets. It can be also defined as the process and activity of planning, organizing, inspiring, and controlling resources, procedures and protocols to achieve specific goals in scientific or daily problems. To plan and schedule project with all basic relationship using primavera p6.
• To compare between planned duration and actual duration.
• And tracking of project using EVM method.
• Ensure cost variance in project.

1. INTRODUCTION

Though technology is developing rapidly and vast day by day, the basic and fundamental needs which are required by human have not changed. In the today’s world scenario, the construction industry has a great demand as the construction industry has become a fundamental part of a country’s framework and mechanical growth and development. As the tall building, multi dwelling are rising throughout the world day by day with the advance construction technology and computer skilled knowledge such as applying various software, but still fail in efficient and effective project management. The project management is an art and mission of preparing, organising and directing human effort to control the forces and use the materials of nature for the requirement of human growth. Planning is something advance thinking, what to do, how to do, where to do, the approximate resource required and number of days to complete particular task in construction project. This project ensures a case study on a residential apartment, where analysis has been done using primavera software p6. An efficient and effective planning and scheduling using primavera software helps to effective control and monitor the progress of work by surveying and reconstructing under a few changes so that the work runs hand in hand with the estimated time and budget. The necessary of planning is to develop a model that allows predicting the activities and resources that are critical for in time completion of the project. The main intension of planning is to ensure all activities and resource are managed and the project is delivered both “on time” and “within budget. Project Management is the Application of knowledge, skills and Techniques to project...
developing the schedule and the budget for work. Developing the construction plan is a critical task in construction management, even if the plan is not written or else formally recorded.

2.2 SCHEDULING
Scheduling is determination the timing of events in the project that is when and which task will be performed? Putting it in simple words it is a reflection of plan. In other words we can say, planning is How, What and Who whereas scheduling is when and why. Scheduling can be also defined as the detailed plan of the project work tasks with respect to time. A schedule is also a good communication tool between all the stakeholders of the project. Schedule gives an overall sense of expected progress of the project without schedule it is very difficult to explain someone unfamiliar with the project what is going on and what is expected to take place.

2.3 TRACKING
Tracking is the process of collecting, entering and analyzing of actual project performance values, such as work on tasks and actual durations. Tracking is the second major phase of project management. The main thing to focus on project planning is developing and communicating the details of project plan before actual work starts. When work begins, the next phase of project management is tracking progress. Tracking means recording project details such as what work did by whom, when the work was done, and at what costs these details are called as actual. Properly tracking actual work and comparing its against original plan is useful to identify the difference in actual and planned and it enables to adjust incomplete task of the plan.

2.4 GANTT CHART SCHEDULING METHOD
The bar chart was originally developed by Henry L. Gantt in 1917 and is called a Gantt chart. A bar chart is—a graphic representation of project activities which are shown in a time-scaled bar line with no links shown between activities (Popescu and Charoenngam, 1995). It quickly became popular in construction industry because of its ability to graphically represent a project’s activities on a time scale. A bar chart has become a vehicle for representing many pieces of a project’s information.

2.5 NETWORK SCHEDULING METHOD
One of the major network scheduling methods which have been used in the construction industry is CPM (critical path method). This method involves the use of a geometric representation of flow chart which depicts the precedence between activities. The critical path method (CPM) is a duration-driven technique in which the basic inputs are project activities, their durations, and dependence relationships. Activity durations are functions of the resources required (rather than available) to complete each activity.

3. ABOUT THE SOFTWARE
PRIMAVERA SYSTEMS, was a private company providing Project Portfolio Management (PPM) software to help project-intensive organizations identify, prioritize, and select project investments and plan, manage, and control projects and project portfolios of all sizes. On January 1, 2009 Oracle Corporation took legal ownership of Primavera. Primavera Systems, Inc. was founded on May 1, 1983 by Joel Koppel man and Dick Faris. It traded as a private company based in Pennsylvania (USA), developing software for the Project Portfolio Management market.

4. STUDY AREA AND METHODOLOGY
4.1 Creating EPS
To create an ideal schedule for any project, first step is to collect data available for the project. The following steps can be followed in Primavera P6 software. Create the complete structure of the company with its branches, which is executing the project using primavera P6. This is known as Enterprise project structure (EPS).

4.2 Creating new project
The project contains a set of different activities and associated information that constitutes a plan for creating a product or service. The project is created under respective divisions in EPS. The project can be given planned start and finish dates. The project is assigned a calendar which can be global, resource or project calendar.

4.3 Creating a calendar
The calendar can create and assign it to each activity. These calendars define the available work hours in each calendar days. Also specify national holidays, organizations, and project- specific work/non a workdays and resource vocation days.
4.4 Work breakdown structure
WBS elements have defined and organize the project elements. It helps to clearly identify the deliverables, report and summarize project schedule and estimated cost data at different levels of detail. WBS is a hierarchy of any project work that must be accomplished to complete a construction project. Each project has its own project WBS hierarchy structure with top level WBS element being equal to that of each EPS node of the project. Each WBS element contains more detailed in WBS levels, activities, or both resources constrains.

4.5 Defining activity
Activities are the fundamental and key work elements of a project and form the top to lowest level of a WBS and, are the smallest subdivision of a project. A project activity has the following characteristics like activity ID, activity name, start and finish dates, activity calendar, activity codes, activity type, constraints, expenses, predecessor and successor relationships, resources, roles etc.

4.6 Relationship between activity
To form a network, scheduling the activities should be connected to each other, which is done by assigning succeeding, preceding activities with significant relationship to the overall project activities.

• Finish to start (FS) relationship
• Start to start (SS) relationship
• Finish to finish (FF) relationship
• Start to finish (SF) relationship

4.7 Activity Duration
When planning the work, the project duration is entered in the original duration field. The actual duration can only be entered for the project activities, which are completed.

4.8 Activity Dates
The following types of project activity dates available in the primavera; actual start, planned start, actual finish, planned finish.

4.9 Creating baseline
A simple baseline plan is a complete copy of the original schedule which provides a target against which a project’s performance is tracked. Choose project. Maintain baseline. Then add and save a copy of current project as a new baseline B1. Then choose project baseline as B1 and assign primary baseline as B1. Daily updates to be made.

4.10 Resource assigning
The resource allocation window shows all the resources grouped by labour and non labour. An approximate rate analysis was done for rates of individual resource groups, considering the various component resources. Most of the resources are taken as material. Machines are taken as non–labour and human worker is listed as labour.

5. CONCLUSION
The Report Wizard in Primavera P6 allows for the inclusion of detailed information about the schedule. This data can be organized in columns, which may then be further sorted and filtered. Both simple and complex filters may be created to display the activities of interest, such as Completed or In Progress activities. In this chapter, we have generated logic report of our project. Its shows some of the reports generated in the project including the start and finish dates of the activities. Using PrimaveraP6 optimizes management off resources, reduces inconsistencies, errors. Allows project managers to break large projects into smaller, achievable projects, tasks and activities. The benefits of effective planning, scheduling and control of construction projects are reduced construction time, reduced cost overruns and the minimization of disputes.

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6. REFERENCES


